University of Nairobi, College of Health Sciences
School of Medicine

ASSESSING THE PRACTICE OF AESTHETIC SURGERY IN KENYA

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POST GRADUATE THESIS SUBMITTED IN PARTIAL FULFILMENT FOR THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF MEDICINE IN PLASTIC, RECONSTRUCTIVE AND AESTHETIC SURGERY, UNIVERSITY OF NAIROBI
2022

STUDENT DECLARATION

I, Dr. Evans Spanton Masitara, do hereby certify that this dissertation is my original work and has not been submitted for the award of any degree at any other institution

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This research proposal was submitted at the Department of Surgery meeting held on 10th of February 2021 at the University of Nairobi. It was subsequently approved by the Kenyatta National Hospital – University of Nairobi, Ethics and Research committee on the 27th of April. The Dissertation is hereby submitted for examination with my approval as the Chairman, Department of Surgery.

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DEDICATION

I dedicate this dissertation to my late father, Spanton Masitara, for instilling in me the value of education, the discipline to work hard and the courage to pursue my dreams.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

ASPS	America Society of Plastic Surgeons
BAPRAS	British Association of Plastic Reconstructive and Aesthetic Surgeons
BBL	Brazilian Butt Lift
ISAPS	International Society of Aesthetic Plastic Surgery
KNH	Kenyatta National Hospital
KSPRAS	Kenya Society of Plastic and Reconstructive Surgery
UON	University of Nairobi
WHO	World Health Organization

ABSTRACT

Background: The past few years have seen a global explosion of aesthetic surgery development. While aesthetic surgery has historically been associated with more developed countries in the global North and emerging markets of Asia, the WHO Africa region is reporting an increase in aesthetic surgery uptake, with various institutions offering aesthetic procedures. In East Africa, Kenya is at the forefront of these developments and has established reputable and advanced institutions offering world-class aesthetic surgery procedures. Despite this, many Kenyans still seek aesthetic surgery overseas, at a comparatively higher cost than local. Re-writing this narrative necessitates a paradigm shift in embedded perceptions that are incongruent with the country's formidable infrastructural capabilities and human capital capacity.

Objective: The primary objective of this study was to assess the practice of aesthetic surgery in Kenya.

Methodology: This was a qualitative cross-sectional study, observational in nature, observing the practice of aesthetic surgery in Kenya. The sample used in this study is a subset of 500 patients who engaged in aesthetic surgery. The sample size was 105 correspondents with previous records in the system, selected using non-probability convenience sampling. All questionnaires were duly filled with no errors and data analysed according to the study objective. Files were retrieved to obtain demographic data as well as the nature of procedure done and average total cost. The data were coded and captured for analysis using the software package SPSS version 22.

Results: A total of 105 participants were enrolled into the study group. Most of the respondents were females covering 87.6% (n=92) of the study according to translated statistics, while the male respondents were 12.4% (n=13).

Most of the respondents were Black/African residing and working in Kenya covering 98.1% (n=103) with the least demographic being Asians living in Kenya at 1.9% (n=2). Ninety seven point one per cent (97.1%) of the study respondents were Kenyan nationals while 2.9% covered other nationalities. A large number of respondents were living in urban areas 95.2% (n=100) and the least living in semi-rural areas 1% (n=1).

The age of the respondents was categorized into age subgroups with the highest number being between the ages of 35-44 years at 44.8% (n=47) while the lowest frequency was found in the age group ages 65 years and above at 1.0% (n=1).

Out of 105 procedures, the most common procedure among the respondents was abdominoplasty, with a frequency of 28.6% (n=30). The procedure with the least amount of respondents were vaginoplasty, blepharoplasty, body lift, rhinoplasty and facial rejuvenation with fat grafting. Each of these procedures had a frequency of 1% (n=1). The second most performed procedure was liposuction 21.9% (n=23), followed by mastopexy at 10.5% (n=11), breast augmentation at 9.55 (n=10) and Brazilian Butt Lift at 8.6%(n=9).

The average cost of an abdominoplasty was US$ 5760; liposuction 360 was US$ 4490, Mastopexy was US$ 2728; breast augmentation (Implants) was US$ 5217 and Brazilian Butt lift was US$ 5652.The average cost of the same procedures in the USA were Abdominoplasty US$8275,Mastopexy US$ 8025,breast augmentation(silicon) US$6525,Liposuction 360 US$5500 and Brazilian Butt lift USD$ 5652.In Egypt,the average costs were, abdominoplasty USD$5240,mastopexy USD$ 4830,Breast Augmentation USD$5083 and Brazilian Butt lift USD $5671 while in India it was Abdominoplasty USD$ 3714,mastopexy USD$4100,Breast augmentation USD$4133,Liposuction USD$4380 and Brazilian Butt lift USD$4550.

Conclusion: The scope of practice of aesthetic surgery in Kenya was comparable to other African countries and the rest of the world. Differences were noted in prevalence with abdominoplasty being the most common whereas genital cosmetic surgery the least common. The cost of surgery in Kenya was relatively cheaper when compared to the USA and was at par with Asian and other African counterparts.

CHAPTER ONE: INTRODUCTION

1.1: Definition

The American Board of Cosmetic Surgery defines aesthetic surgery as the upgrading of a patient's appearance and enhancing of symmetry (1). Bajwa *et al* emphasises that because the the regions of the body treated, which include the head, neck and various body zones are fully functional, aesthetic surgery is essentially an elective surgery. According to Morrison, the elective nature of aesthetic and cosmetic surgery is the essential differentiator between cosmetic/aesthetic surgery and plastic surgery in terms of training (2)

1.2: Background and History

Prior to World War I, the practice of aesthetic surgery was minimal, which translated to scant publications about the procedures. It was the advent of the war that saw heightened interest in aesthetic surgery, with several units of maxillofacial surgery being established to deal with the facial trauma sustained by soldiers in warfare. Shiffman has conducted an extensive study into the history of aesthetic surgery and contends that procedures including the special aspects of breast reduction, mastopexy, liposuction, otoplasty and rhinoplasty can be traced to hundreds of years ago (3). This was corroborated by Durston who traces the advent of breast surgery to 17th century England (4). However, it was not until the early 1920s that literature on cosmetic surgery began to permeate the scientific journals.

The work of Max Thorex and Erich Lexer, focused on the history of mammoplasty ,specifically breast reduction with an open nipple-areola complex transposition while preserving the continuity of the skin with the remaining gland. These works were pioneering and they set the pacefor elevation of aesthetic surgery in medical science (5). But while the history of the development of aesthetic surgery can be traced to over a century ago, it was not until the advent of World War I that the seed of the advance of aesthetic surgery began to blossom. By the1960s,it would be planted across many parts of the developed world (6). This was not the

case with most of the developing world and particularly the WHO Africa region, where cosmetic surgery has developed at a slower pace.

According to Guzman *et al*, sub-Saharan Africa is lagging behind developed countries in the Global North as well as emerging economies of South-East Asia in terms of the provision of both reconstructive and aesthetic surgeries (7). They performed a retrospective review of plastic surgery operative records, ward admissions and death records in a tertiary care hospital in Maputo over a one year period. While their research was focused on the Southern Africa Development Community (SADC) region, the results were transposable to the rest of the continent, where infrastructure and specialist resources are lacking. Lack of infrastructure and specialist resources are only part of a host of reasons why there is a slower pace of development of aesthetic surgery in Africa, the other reason may be the low utilisation of existing local aesthetic surgery services.

1.3: Global and local Perspectives

Rogers *et al* conducted a triangulated study looking at the scope of cosmetic surgery, and their data demonstrated that perception regarding the scope of plastic surgery is grossly limited not only on the part of patients but also on junior doctors, particularly those those in public health sector plastic surgery practice (8). Agarwal made the same observation in India almost a decade ago using a questionnaire administered to four population groups of respondents who were surveyed at random, and his data revealed that majority of the public needs more information about the benefits of aesthetic surgery (9). The implications of these were felt in economic losses to African countries because of overseas aesthetic treatment. The growing demand for aesthetic surgery by Kenyans and Africans as a whole is indicative of the availability of disposable income within the populace. This offers an opportunity for utilization not only for aesthetic surgery services and facilities, but also for medical tourism in Kenya.

As noted by Guzman *et al* (7), the African continent is lagging behind the rest of the developed world as well as emerging economies in South-East Asia with regard to the provision of aesthetic surgery services. The implication of this is not only economic but also, epistemic. There is inadequate literature on all aspects of aesthetic surgery on the continent, including its

evolution, as well as elementary literature around the current state and scope of the practice. This study will address the observations made by Agarwal and Guzman *et al* by detailing the current state of aesthetic services in Kenya. This will provide information on procedures available in Kenya and therefore challenge the notion of limited information about these procedures. There is a paucity of literature on the kind of aesthetic surgery procedures done in Kenya, which has implications for the country's capacity to position itself as a key player in the aesthetic surgery space where it has a comparative advantage.

CHAPTER TWO: LITERATURE REVIEW

2.1: Reconstructive (Plastic) versus Aesthetic Surgery

The American Board of Cosmetic Surgery defines cosmetic surgery as the enhancement of a patient's appearance and symmetry. The features being upgraded are functional and according to the American Medical Association, the aim of the surgery is to reorganise normal and functional structures on a patient so as to improve appearance and self-esteem. (10). The Royal College of Surgeons of England defines it as surgery "where a person chooses to have an operation or invasive medical procedure to change their physical appearance for cosmetic rather than medical reasons" (11).

Aesthetic surgery is often used interchangeably with plastic surgery, which is "the process of reconstructing or repairing parts of the body by the transfer of tissue, either in the treatment of injury or for cosmetic reasons" (Oxford Dictionary). This is largely because both aesthetic surgery and plastic surgery involve improving a patient's body. But as posited by the American Board of Cosmetic Surgery, there are differences in the philosophies that guide training and goals for patient outcomes. The Board asserts that the focus of the different techniques applied in cosmetic surgery is to enhance the patient's appearance, thus "improving aesthetic appeal, symmetry and proportion are the key goals". Plastic surgery on the other hand is mainly focused on the "reconstruction of facial and body defects due to birth disorders, trauma, burns and disease" (12). The intention of plastic surgery is to amend dysfunctional areas through reconstruction. Plastic surgery is intended to correct dysfunctional areas of the body and is, by definition, reconstructive in nature.

The relationship between reconstructive surgery and aesthetic has been a subject of debate within the medical community. Tagliacozzi set parameters for this debate in 1598 when he made the argument concerning nasal reconstruction that "the end goal is not only to reconstruct the nose which may have been lost due to trauma, but to ensure it retains an aesthetic appeal". It is argued that "the result of a reconstructive operation is judged not only by its restorative success, but also by its aesthetic quality" (13). Kahoro, corroborates this argument and contends that "although the aim of reconstructive surgery is to improve the functionality of an area, patients also want their looks to be enhanced" (14). While there is validity in the substance of the posed arguments, this research analysed the scope of practice of aesthetic surgery as defined by the American Medical Association and the American Board of Cosmetic Surgery.

2.2: Aesthetic surgery in developed countries

The American Society of Plastic Surgeons released a report analysing plastic (aesthetic and reconstructive) surgery statistics in the United States. The report represented two decades of data from registered aesthetic and plastic surgery institutions. Some of the key findings of the study need to be analysed as they correlated to some degree with the trends in sub-Saharan Africa. According to the ASPS report, there has been an upward trend in the number of patients seeking aesthetic services, including minimally invasive procedures. The graph below shows the top five plastic surgery procedures that were done during this period by Americans.

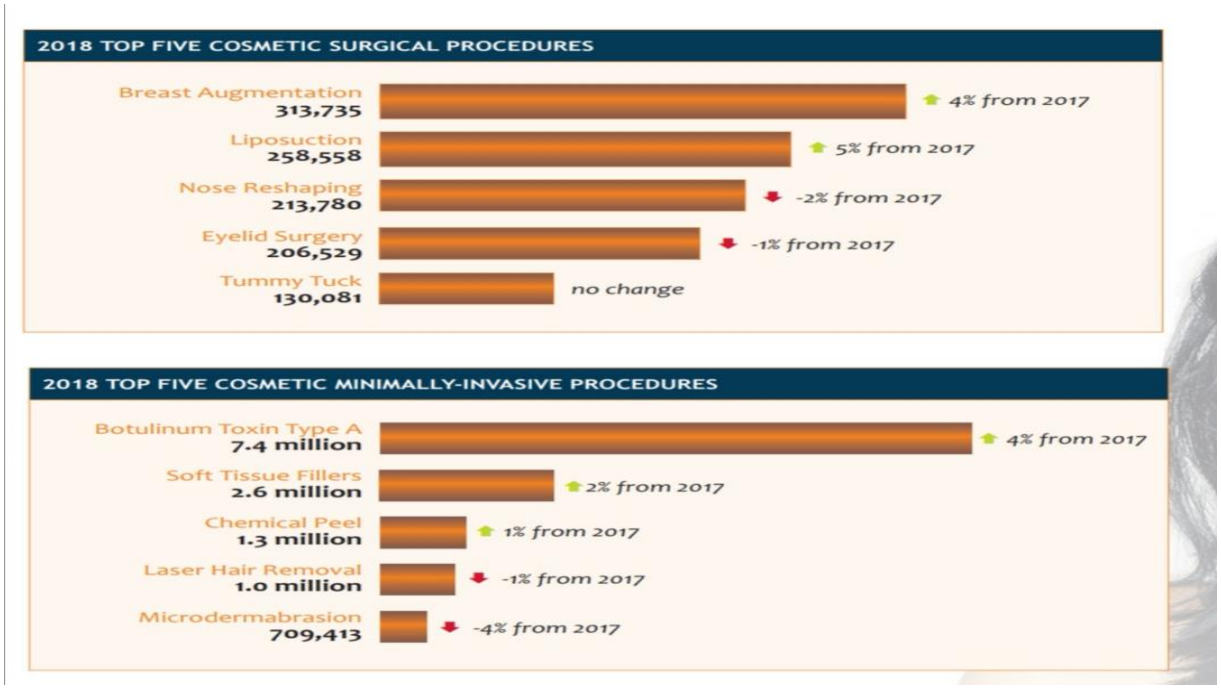


Figure 1: 2018 Top 5 aesthetic surgery procedures *Source:* 2018 Plastic Surgery Statistics Report

Breast augmentation continued to be a leading procedure since 2006 (ASPS, 2018) and although buttock augmentation with fat grafting and hair transplantation were not part of the top five aesthetic procedures, there has been reports of notable increase in demand (16). Hair transplantations increased by 19 percent while buttock augmentation saw a 10 percent increase. Minimal invasive procedures were also in great demand. According to the report, facial rejuvenation procedures have experienced exponential growth. In the year 2018, 7.4 million botulinum toxin types A injections were performed on patients. In terms of demographics, the report found that 92% of all procedures were performed on female patients, with patients in the 40–54 age brackets seeking services more, followed by 55 year and above.

2.3: Aesthetic surgery in sub-Saharan Africa

Trends of aesthetic surgery in the sub Saharan Africa region cannot be understood outside the analysis of the evolution of beauty standards that have been made by popular culture transposed from the Global North. This is captured by Reid who contends that the local standard of "big is beautiful" is evolving to a thinner beauty ideal (17). She argues that "in countries such as Nigeria, Ghana, Rwanda, Sudan and Kenya, more Africans are going under the knife to remove

excess fat, breast lift and tummy tuck. Many Africans have been influenced by Western life style and media; this includes the shift toward preference for a smaller waistline". The relationship between the two factors is directly proportional, which may explain to some degree the historical preference of African patients to seek aesthetic surgery in the Global North.

While this has changed, with South-East Asia becoming the premier destination for aesthetic surgery procedures for Africans and persons from the West alike, the nature of aesthetic procedures being sought, both invasive and non-invasive is reflective of beliefs about what beauty is (7). The universality of this definition is at the heart of the growing market for aesthetic surgery. Ahmed Adel contends that while in the past there was high demand for reconstructive surgery, the demand for aesthetic surgery is equally increasing (15). Ibrahim concurs, arguing that the skill sets of plastic surgeons which were historically focused largely on reconstructive surgery, also address a wide range of soft-tissue conditions prevalent in sub-Saharan Africa (17).

But while reconstructive surgery has a longer history on the continent, the past decade has seen an exponential increase in the demand for aesthetic surgery, both in terms of the procedures and institutions offering the procedure (15). While South Africa continues to dominate in terms of the number of institutions and surgeons providing aesthetic surgery procedures, other countries are beginning to catch up (18). Kenya is leading the charge in East Africa and has become a regional hub for training and provision of aesthetic surgery (19). Kenya has twenty-five registered Plastic Surgeons which is remarkable increase from seven a decade ago (15).

2.4: Global trend analysis

Preliminary research indicates an exponential surge in cosmetic procedures being performed worldwide, both in the developed and developing world. And while the United States and Europe dominate global plastic surgery in terms of resources and infrastructure, countries in the developing world are catching up. A study by Cory Torgeson, indicated that there are more women in Asia with cosmetic surgery procedures than in any other part of the world (20). The study says that one in five South Korean women has had some form of aesthetic surgery, whilst in the USA the figure is one in twenty. Seoul, the capital city of South Korea, is now referred to as "the capital city of plastic surgery" owing to the fact that cosmetic plastic surgery clinics line the roads and the fact that cosmetic surgery is a lucrative industry that rakes in $5billion a year (20). According to the American Society of Plastic Surgeons, 17.7 million people had

surgical and other cosmetic procedures in the United States in 2018, a 2% increase from the previous year (16).

YEAR-TO-YEAR COMPARISONS: 2016 VS. 2015

ISAPS International Society of Aesthetic Plastic Surgery

TOTAL PROCEDURES	2015	2016	% CHANGE (OVERALL VOLUME)	% CHANGE (FOR AVERAGE SURGEON)
Face & Head				
Brow Lift	243,140	261,663	8%	2%
Ear Surgery	252,718	298,975	18%	12%
Eyelid Surgery (upper and lower lids should be counted as 2 procedures)	1,264,702	1,347,509	7%	1%
Facelift	411,529	427,065	4%	-2%
Facial Bone Contouring (e.g., chin augmentation)	108,250	109,775	1%	-4%
Fat Grafting-face	591,894	596,836	1%	-5%
Neck Lift	232,606	264,050	14%	7%
Hair Transplantation	134,019	135,053	1%	-5%
Rhinoplasty	730,287	786,852	8%	2%
Total Face & Head Procedures	3,969,147	4,227,778	7%	1%

Figure 2: Global year-to-year comparisons: 2016 versus 2015 (Face & Head)

Source: ISAPS, 2016.

Figure 2 above provides a comparative analysis of the total number of procedures that were done between the years 2015 and 2016, in the category of face and head surgeries, on a global scale. The analysis indicated that eyelid surgery is the most prominent within this category, followed closely by rhinoplasty and fat grafting on the face. It also indicated that between 2015 and 2016, all face and head procedures saw an increase in overall volume, with ear surgery and neck lift seeing the greatest increase in overall volume. Just over 3.9 million people globally underwent cosmetic surgery in the face and head category in 2015, with the number increasing to just over 4.2 million by 2016. This exponential increase confirmed the reviewed literature indicating an increase in cosmetic surgery in both developed and developing countries.

The literature reviewed in this study indicated that hair transplantation is particularly prominent in men (16,22-23). Based on this analysis, Figure 2 provides an important glimpse into the scale at which this particular form of cosmetic surgery is growing at a rate of 5% for the average

surgeon. What this sheds light on is that men were also increasingly getting surgical procedures, this number has increased from 134 019 in 2015 to 135 053 in 2016.

Cosmetic breast surgery

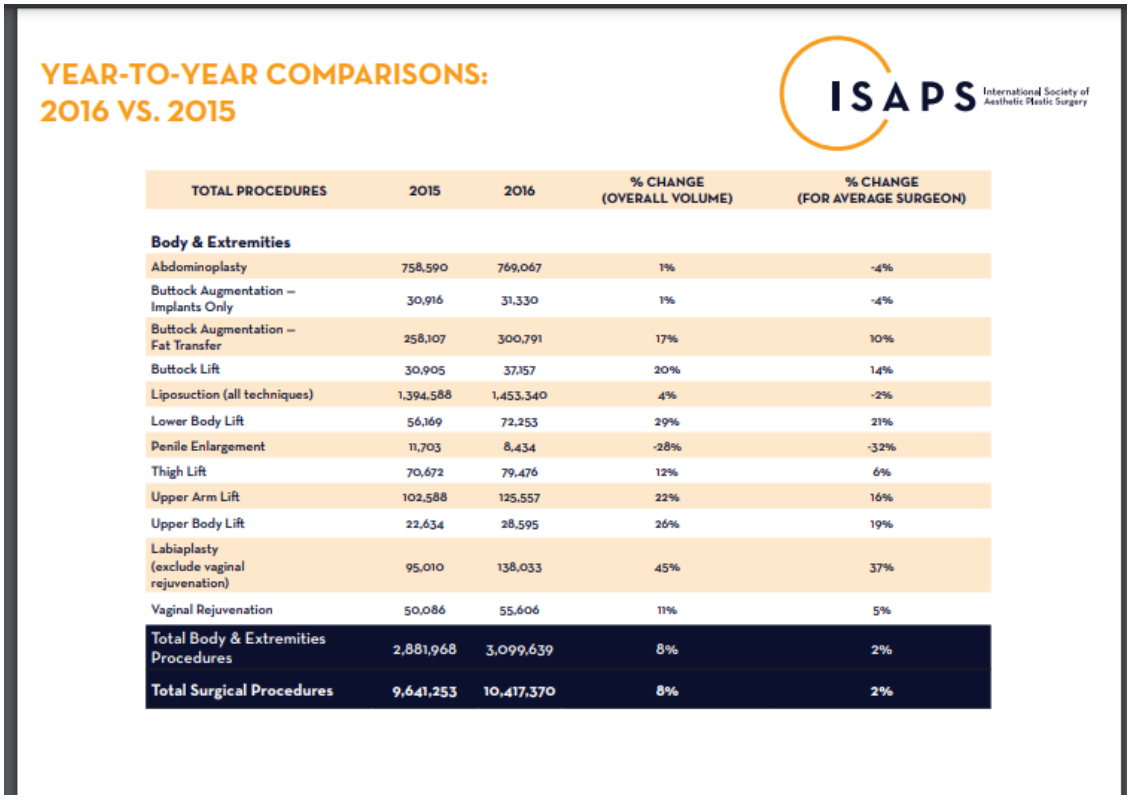
Breast				
Breast Augmentation – Saline	64,674	61,780	-4%	-10%
Breast Augmentation – Silicone	1,311,129	1,449,337	11%	4%
Breast Augmentation – Fat Transfer	113,189	138,154	22%	15%
Breast Implant Removal (breast implant explantation)	153,476	155,453	1%	-4%
Breast Lift	512,248	583,192	14%	8%
Breast Reduction	423,093	465,665	10%	4%
Gynecomastia	212,328	236,371	11%	5%
Total Breast Procedures	2,790,138	3,089,952	11%	5%

Figure 3: Global year-to-year comparisons: 2016 versus 2015 (Breast) Source: ISAPS, 2016.

Cosmetic procedures pertaining to the breast area also saw a marked increase between the years 2015 and 2016, as shown in Figure 3 above. Silicone-based breast augmentation, with 1 311 126 procedures in 2015 and 1 449 337 in 2016, was by far the most prominent breast procedure, followed by a breast lift and breast reduction. The only procedure that saw a decline was saline-based breast augmentation, which totalled 64 674 procedures in 2015 compared to 61 780 in 2016. Yet based on the statistics for silicone-based breast augmentation, it was evident that patients were not necessarily discarding breast augmentation altogether but were opting for a silicone rather than saline base. This might be explained by an analysis that argues: "Several women who've had breast implants also prefer the feel of silicone implants". Rippling is problematic with saline implants, especially in women who did not initially have a lot of breast tissue. Several women reported that silicone implants were lighter and look more natural than saline implants (22).

In terms of the overall volume percentage change, breast augmentation using fat transfer had the highest percentage change at 22 percent, followed by breast lift at 14 percent.

Body and extremities



YEAR-TO-YEAR COMPARISONS:
2016 VS. 2015

ISAPS International Society of Aesthetic Plastic Surgery

TOTAL PROCEDURES	2015	2016	% CHANGE (OVERALL VOLUME)	% CHANGE (FOR AVERAGE SURGEON)
Body & Extremities				
Abdominoplasty	758,590	769,067	1%	-4%
Buttock Augmentation – Implants Only	30,916	31,330	1%	-4%
Buttock Augmentation – Fat Transfer	258,107	300,791	17%	10%
Buttock Lift	30,905	37,157	20%	14%
Liposuction (all techniques)	1,394,588	1,453,340	4%	-2%
Lower Body Lift	56,169	72,253	29%	21%
Penile Enlargement	11,703	8,434	-28%	-32%
Thigh Lift	70,672	79,476	12%	6%
Upper Arm Lift	102,588	125,557	22%	16%
Upper Body Lift	22,634	28,595	26%	19%
Labiaplasty (exclude vaginal rejuvenation)	95,010	138,033	45%	37%
Vaginal Rejuvenation	50,086	55,606	11%	5%
Total Body & Extremities Procedures	2,881,968	3,099,639	8%	2%
Total Surgical Procedures	**9,641,253**	**10,417,370**	**8%**	**2%**

Figure 4: Global year-to-year comparisons: 2016 versus 2015 (Body & extremities) Source: ISAPS, 2016.

Cosmetic surgery in the body and extremity category provides some interesting statistics, as indicated in Figure 4 above. Liposuction (all techniques) saw a marked increase from 1 394 588 surgeries in 2015 to 1 453 340 in 2016, while labliaplasty (excluding vaginal rejuvenation) saw an increase from 95 016 in 2015 to 138 033 in 2016. This is a staggering 45 percent overall increase in volume and also the highest change in terms of procedures being performed by the average surgeon at 37 percent.

The increase in vaginal rejuvenation is also notable. A study by OPB Medical looks into the trends for vaginal related surgeries across the globe. It states that an increase in labliaplasty was evident in the United States and other parts of the developed world (23). According to the study, in Australia, the number of labliaplasty procedures performed rose from 444 to 1 605 annually over a 13-year period (24). The trend was even more pronounced in the United

Kingdom, where there was a fivefold increase in labliaplasties over a 10-year period (23). It attributed these growth rates to a change in grooming practices, a distorted view of what a normal vagina ought to look like as well as the influence on social media.

Genitalia cosmetic surgery

The contrast between men and women in so far as cosmetic surgery on the genitalia is concerned was notable. As indicated in Figure 4, penile enlargement saw a marked decline between 2015 and 2016, with 11 703 procedures performed in 2015 and only 8 434 performed in 2016. This procedure saw the largest percentage change in terms of decline as well as the lowest percentage change for the average surgeon. This decline can be explained in terms of the immeasurable efficacy of the procedure. The Society for the Study of Impotence has found that there is no scientific evidence to prove safety or effectiveness of girth enhancement and penile lengthening surgery. These were classified as experimental surgery (25).

2.5: CASE STUDIES IN THE DEVELOPING WORLD

2.5.1: India

According to Torgeson, the developing world and emerging economies were also seeing a substantially marked increase in the demand and supply of cosmetic surgery, with Asia registering some of the highest figures (20). South Korea dominated in terms of the volume and scope of cosmetic procedures, as other parts of South-East Asia in particular.

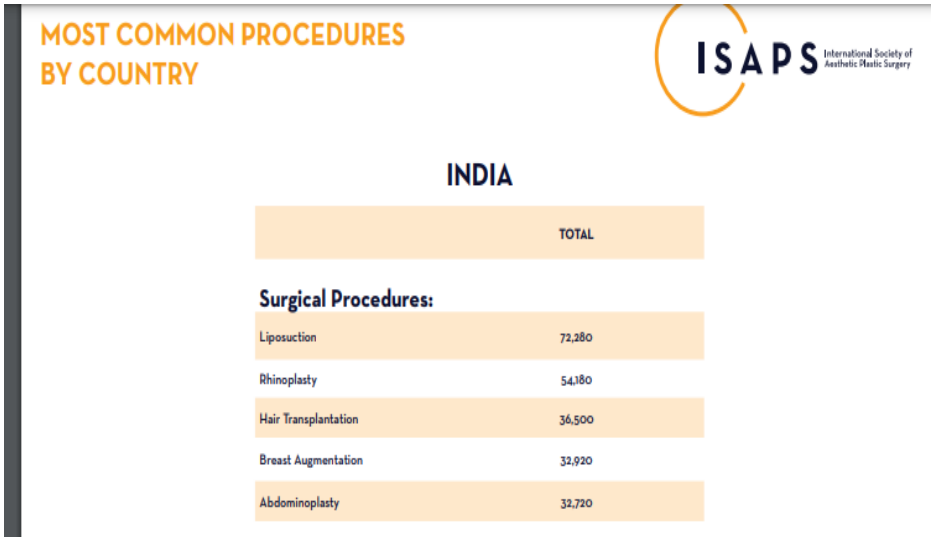
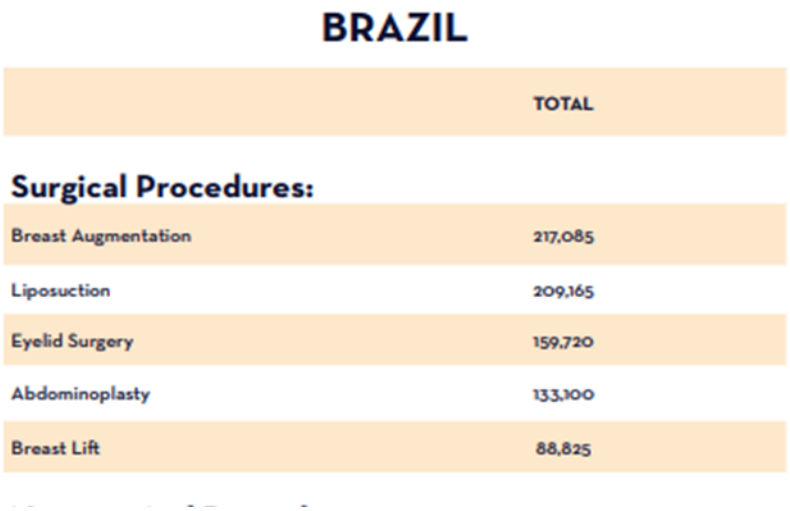


Figure 5: Most common procedures in India, 2016. Source: ISAPS, 2016.

India has the second largest population in the world, at 1.366 billion. It has experienced a gradual increase in cosmetic surgeries performed (25). The most common of these procedures, as listed in Figure 5 above, includes liposuction, which is the most common procedure done in this developing nation. India, in 2016, ranked fourth with 935 487 cosmetic procedures performed. The procedures accounted for 4.3% of all procedures recorded annually. Thakurani and Gupta argued that over the past 10 years, India had witnessed growth in medical tourism due to competitive standards of care and services at a relatively affordable cost (27). This explains why, according to ISAPS, 12.5% of aesthetic procedures in India were on patients from abroad in 2018, with majority coming from Bangladesh, Afghanistan and the Middle East (26).

2.5.2: Brazil

Over the years, Latin America has also seen a boom in the rates and scope of cosmetic surgery. The most populous country within the Latin American region, Brazil, with a population of 211 million, is also the region's capital of plastic surgery. It was ranked second after the United States when comparisons for procedures performed were made (28).



BRAZIL

	TOTAL
Surgical Procedures:	
Breast Augmentation	217,085
Liposuction	209,165
Eyelid Surgery	159,720
Abdominoplasty	133,100
Breast Lift	88,825

Figure 6: Most common procedures in Brazil, 2016.Source: ISAPS, 2016.

According to the International Society of Aesthetic Plastic Surgery, the most common surgical procedure performed in Brazil was breast augmentation, followed closely by liposuction and then abdomino-plasty (33).

2.5.3: Egypt and South Africa

A report in 2016 by the International Society of Aesthetic Plastic Surgery, which contains listings by country for cosmetic procedures performed in 2016, contained data for only Egypt and South Africa in as far as the African continent was concerned. The rest of the data analysed was from the Americas, Europe and Asia. Cosmetic procedures were performed in other parts of the continent, specifically in Kenya and Nigeria. An analysis by Cutica Health, contends that in Kenya, plastic surgery is rapidly becoming more popular, and while wealthy Kenyans used to travel abroad to have their plastic surgery done, there were a few Kenyan Surgeons performing these procedures locally (30). The journal reported that majority of these Surgeons went to the United Kingdom and the United States for training and demand for their services was on the rise.

Nonetheless, Egypt and South Africa have more advanced infrastructure and higher incomes per capita, which enable their population's access to cosmetic surgery. Cutica Health contends that as there has been a good economic growth in some African countries, or in the case of South Africa a relatively stable economy, this had resulted in an emerging middle class with more disposable income (30). In addition to this, there was a slow but steady improvement in the social status of women in Africa. Greater numbers of women are now better educated than ever before and are involved in business and leadership. This trend has seen the emergence of financially independent women, particularly in West African nations like Ghana and Nigeria, as well as Egypt and South Africa. This has fuelled a market for cosmetic surgery (30).

The numbers of plastic surgeons on the African continent, even for Egypt and South Africa which are deemed to have a more advanced scope of practice, are still relatively small. According to ISAPS, there were 540 and 160 plastic surgeons in Egypt and South Africa, respectively. Egypt has a population of 100.4 million while South Africa has a population of 58.56 million (25). Other countries across the world also have a low number of plastic surgeons, with the United States of America having 6 600, Brazil having 5 500 and India having 2000 (28).

68

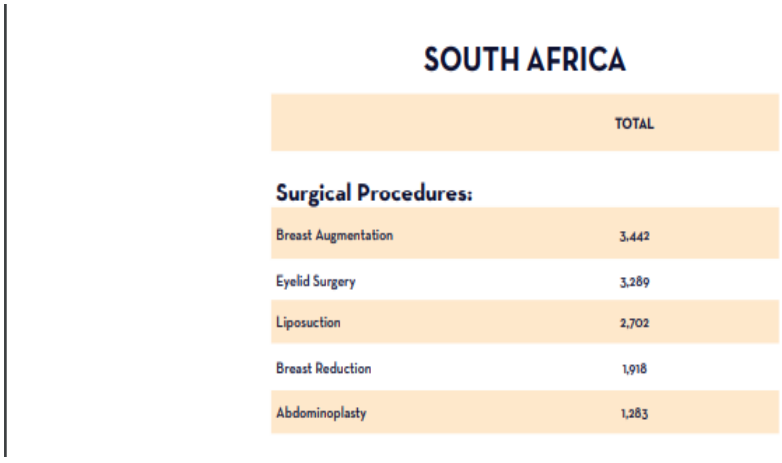
MOST COMMON PROCEDURES BY COUNTRY

ISAPS International Society of Aesthetic Plastic Surgery

EGYPT

	TOTAL
Surgical Procedures:	
Liposuction	24,840
Breast Augmentation	15,871
Abdominoplasty	14,920
Fat Grafting-face	13,009
Rhinoplasty	12,485
Non-surgical Procedures:	
Botulinum Toxin	56,781
Hyaluronic Acid	51,516
Hair Removal	44,669
Chemical Peel	10,141
Full Field Ablative	8,980

Figure 7: Most common procedures in Egypt, 2016.Source: ISAPS, 2016.



SOUTH AFRICA

	TOTAL
Surgical Procedures:	
Breast Augmentation	3,442
Eyelid Surgery	3,289
Liposuction	2,702
Breast Reduction	1,918
Abdominoplasty	1,283

Figure 8: Most common procedures in South Africa, 2016. Source: ISAPS, 2016.

Figures 6 and 7 above indicated the most common surgical procedures in South Africa and Egypt. They indicated that for both countries, liposuction, breast augmentation and abdomino-plasty were very popular. Rhinoplasty was common in Egypt, with over 12 000 people having

undergone the procedure in 2016. This was not the case with South Africa where it was eyelid surgery that was more common, with just over 3000 people having done the procedure in 2016. Breast reduction is also a common procedure in South Africa, while fat grafting in the face was more common in Egypt. The differences in what surgeries were popular in each of these countries were less pronounced than the similarities.

The cosmetic surgery trend in Africa did not necessarily follow the global trend even as there were some salient similarities. According to studies, while many Africans seeking plastic surgery were looking for smaller stomachs and firmer breasts, they seemed satisfied with their ethnic features such as noses, lips and eyes. It is perhaps for this reason that the most popular procedures were liposuction, breast changes, tummy tucks and eyelid lifts. According to analysts, this was very different from overseas trends, where clients arrive at their surgeon's appointment with a wish list for a celebrity makeover as Africans were more conservative in their requests. Most wanted an enhanced version of them and did not want to look completely different. Younger clients were the ones who were having breast changes made because they thought their breasts were too small or too large. They also requested "mommy makeovers," where they want their shape back after children birth. As client's age, facial work becomes more popular, with many asking to repair sagging of the eyelids and mouth".

2.6: COMPARATIVE ANALYSIS OF COSTS OF PROCEDURES GLOBALLY

	AVERAGE COST OF PROCEDURE IN SPECIFIC COUNTRY (quoted in US dollars)						
TYPE OF AESTHETIC PROCEDURE	Kenya	USA	Brazil	India	South Africa	Egypt	Nigeria

Abdominoplasty (tummy tuck)	5760	8 275	4 950	3 714	5 175	5 240	4 500 – 4 700
Mastopexy (breast lift)	2728	8 025	4 661	4 100	5 042	4 830	2 700
Breast augmentation with silicone implants	5217	6 525	4 100	4 133	5 374	5 083	3 750
Lipo 360	4490	5 500 – 7 500	4 783	4 380	4 405	4 236	4 100
Brazilian Butt Lift	5652	6 900	4 750	4 550	5 743	5 671	3 800
Liposuction Abdominal	3329	6 175	3 700 – 4 910	3 406	4 072 – 5 150	4 400 – 5 380	3 000 – 3 200

Table 1: Comparative costs of cosmetic surgery procedures globally *Source: Compiled by author from various sources*

2.7: COVID-19 PANDEMIC AND THE ZOOM BOOM

The advent of the COVID-19 global pandemic has resulted in a growing interest in cosmetic surgery. According to Meeson, cosmetic surgeons had reported an increase in bookings for both surgical and non-surgical treatments following the easing of lockdown restrictions in some countries. These include Australia, the United States, the United Kingdom, Japan and South Korea (21).

The British Association of Aesthetic Plastic Surgeons (BAAPS) reported up to 70% increase in requests for virtual consultations during the period of lockdown, as patients continued to consult for various cosmetic procedures they might consider after the lockdown (21). When lockdown began in March 2020, Save Face, a government-approved register of accredited cosmetic practitioners in the United Kingdom, reported an increase of 40% consultations on its website, with people researching various procedures, and then logging onto the register to book local practitioners (21). Similar trend was also gleaned across the Atlantic Ocean in the USA, where, according to the American Society of Plastic Surgeons, despite offices being closed, plastic surgeons-maintained communication with patients and were able to measure the performance of telemedicine. Through this, they were able to make a determination that there was a substantial increase in the number of people utilising telemedicine consultation services for plastic surgery. According to the ASPS, injection drugs were the most asked for treatment during these consultations, followed by more invasive procedures. The top five most requested procedures were Botulinum toxin type A with 65 percent request rate, breast augmentation with 44 percent, soft tissue fillers with 37 percent, lipo-suction with 30 percent and abdomino-plasty with 24 percent.

The “Zoom boom” has also been seen in the developing world, with South African plastic surgeons reporting an increase in demand for their services during lockdown (30). Health information website Cutica Health corroborated this, asserting that plastic surgery was becoming popular especially in countries such as Nigeria, South Africa, Kenya and Sudan. Of significance was the assertion by Somji that while women historically sought cosmetic surgery services more than men the “Zoom boom” reflected a growing proportion in the number of men also seeking cosmetic procedures (33). This assertion was corroborated by *The Economist* which argued that during the pandemic, both men and women spent significant amounts of money on cosmetic surgery, with face and neck procedures being more prominent among both sexes (22). In terms of age demographics, both younger and older people were electing to have cosmetic procedures done on their faces.

2.8: JUSTIFICATION OF STUDY

Kenya has one of the most developed and dynamic public and private health sectors in sub-Saharan Africa. Despite of this, the National Assembly Health Committee has reported that more than 10 000 Kenyan citizens travel abroad annually in pursuit of medical treatment, spending at least Sh10 billion or $90,845, 660.00 US Dollars (34). While this number reflected medical treatment with cancer patients accounting for 50 percent of Kenyans seeking medical services overseas, there was evidence that a good number of Kenyans also sought aesthetic procedures in other countries. This trend might have been justified a decade ago when Kenya did not have the infrastructural and specialist capacity to provide aesthetic treatment.

It is concerning that while evidence demonstrates that Kenya is a competent player in the medical aesthetic surgery industry, there were still multitudes of Kenyans seeking services in other parts of the world, often at a higher cost. One of the reasons might be the lack of published data on the scope of practice and current status of aesthetic services provision in Kenya. Based on extensive literature review,there has been limited research on barriers to local demand for aesthetic surgery consultations and procedures To the best of my knowledge there has been no research on this aspect as yet.

2.9: RESEARCH QUESTIONS

1. What aesthetic services are provided in Kenya?
2. What is the prevalence of the aesthetic procedures that are performed in Kenya?
3. What is the average cost of the most common aesthetic surgical procedures that are done overseas versus the average cost of aesthetic surgeries done in Kenya?
4. How do these prevalence and costs of aesthetic surgery compare to the same procedures within the WHO Africa region?

2.10: RESEARCH AIM/BROAD OBJECTIVE

The aim of this study was to assess the practice of aesthetic surgery in Kenya.

2.11: OBJECTIVES

Objective 1

To identify types of surgical aesthetic procedures provided in Kenya

Objective 2

To assess the prevalence of surgical aesthetic services in Kenya over a period of 2 years

Objective 3

To determine the average cost of aesthetic surgical procedures in Kenya, contrasted with the same procedures within the World Health Organization Africa region.

CHAPTER THREE: RESEARCH METHODOLOGY AND DESIGN

3.1: Study design

The study is a cross sectional study. It involves the observation of data from a defined period.

3.2: Study area

This research was based in Kenya, located in East Africa, with a population of 47,564, 296 people (36). According to Zinkina and Korotayev, owing to rapid population growth, at least 73 percent of the Kenyan population is youth(age 18 to 34 years) (37). Kenya is bordered by Ethiopia, Uganda, Somalia and Tanzania, making it a strategically located country within one of Africa's largest regional economic blocs. According to *The Standard,* Kenya is the third

largest economy in sub-Saharan Africa after South Africa and Nigeria, and according to the International Monetary Fund, is a lower-middle- income economy, with a per capita income of $1800 (38-39).

Specific aesthetic surgery institutions where research was conducted were as follows:

1. Da Vinci Clinic, Nairobi
2. AfroBeauty Clinic, Nairobi
3. Kenyatta National Hospital, Nairobi
4. Platinum Clinic, Nairobi
5. Karen Hospital

3.3: Study Duration

The study duration, inclusive of the pre-study preparation, commencement of data collection and data analysis was 12 months.

3.4: Study Population

The catchment population was estimated at 500 patients for the two years, at 250 each year. Given that this was across 5 defined aesthetic surgery institutions, this implied an average of 50 patients per institution per year. The study population is 105, derived from the 500 catchment population.

3.5: Selection Criteria

3.5.1: Inclusion criteria

1. Individuals who underwent aesthetic surgery within the last two years.

2. Individuals aged 18years and above

3. Patients with no psychiatric problems

3.5.2: Exclusion Criteria

1. Individuals with Body Dysmorphic Disorder and other Psychiatric conditions

2. Institutions that declined to give consent

3.6: Sample Size

$$\text{Sample size} = \frac{(\text{Z score})^2 \times \text{Std Dev} \times (1\text{-Std Dev})}{(\text{Margin of error})^2}$$

With a 90 percent confidence level, 5standard deviation and a margin of error of +/- 8 percent, the sample size to be used is calculated as follows:

$$\text{Sample size} = \frac{(1.64)^2 \times 5(5)}{(.08)^2}$$

$$\text{Sample size} = \frac{(2.6896 \times .25)}{.0064}$$

$$\text{Sample size} = \frac{.6724}{.0064}$$

Sample size = 105.06

The sample size for this study was therefore 105

3.7: Sampling Procedure

For this research, non-probability purposive sampling was used. Non-probability sampling is a sampling technique in which the researcher selects samples based on the subjective judgment of the researcher as opposed to a random selection. A non-randomised technique was used to draw the sample, which in this case was specific to individuals who had undergone aesthetic procedures in Kenya.

3.8: Study Procedure

Consent was obtained from the institutions which offered aesthetic services and attending surgeons to provide data on the numbers and types of procedures performed. Consent, Files was reviewed to obtain demographic data of the patients. Data were collected by a specially designed tool that captured information on patient demographics, clinical information including type of surgery and cost of surgery.

3.9: Variables

3.9.1: Independent variables

Independent variables in this study were age, gender, and year of procedure, service provider and type of procedure performed.

3.9.2: Dependent variables

The main output variables were the type of aesthetic surgical procedure performed.

3.10: Data Collection

Data was collected via a special designed tool that captured information on patient demographics, type of surgery performed, marital status, employment status, residence and nationality and estimated cost of procedure.

3.11: Data Management and Analysis Plan

Data were verified, cleaned, categorised and captured using the software package SPSS version 22 for statistical analysis. The folder containing data was password protected and uploaded to a cloud storage drive, with daily backup to prevent missing entries.

Descriptive statistics such as frequencies and percentages were used to describe demographic characteristics like age and sex. Following this, the qualitative data were analysed through the use of content analysis. Data is presented as figures, text, tables and graphs.

3.12: Study Limitations

A preliminary review of the literature indicates that there is scant academic research on aesthetic surgery in the developing world, specifically in Kenya. This creates multiple significant gaps in the literature, which could create deficiencies in the substance of the qualitative analysis. A two-year retrospective analysis was undertaken. This necessitated correct and up-to-date information in the archives of various private and public medical institutions. Their data storage, if it is any way impacted, will have adverse implications for the validity of the data that the researcher will be collecting for analysis.

The centres studied are in the capital Nairobi and while this is the country's capital and economic nerve-centre, this might not give a clear picture of the status of aesthetic services in the whole country.

3.13: Ethical Considerations

Ethical approval was granted for this research. This study involves collection of data about human subjects, therefore some ethical considerations must be observed. Personal data was ensured through the use of a code number for identification. Throughout the research process, data was protected. A password-protected computer database was generated to store recorded data. Additionally, paper records were stored in a locked file cabinet.

The communication of results as a key ethical consideration was ensured at all levels. Specifically, the researcher endeavoured to desist from plagiarism, academic fraud, and the misrepresentation of results. Linked to this, the researcher endeavoured to provide the summary of the collated data to participating hospitals and clinics to ensure transparency and enabled clarification where needed.

CHAPTER FOUR: RESULTS

4.1: Introduction

Data were collected from five different institutions, namely Da Vinci Clinic, AfroBeauty Clinic, Platinum Clinic, Karen Hospital and Kenyatta National Hospital.

The sample size was of 105 correspondents with previous records in the system using non-probability convenience sampling. All questionnaires were duly filled with no errors and data analysed according to the study objective.

4.2: Gender

Owing to the nature of this study, which assessed the practice of aesthetic surgery in Kenya, gender played a significant role in the data. The nature of cosmetic surgeries performed was greatly influenced by gender, which in turn informs the types of surgeries that were prominent as well as enabled us to make observations about the trajectory of procedures broadly.

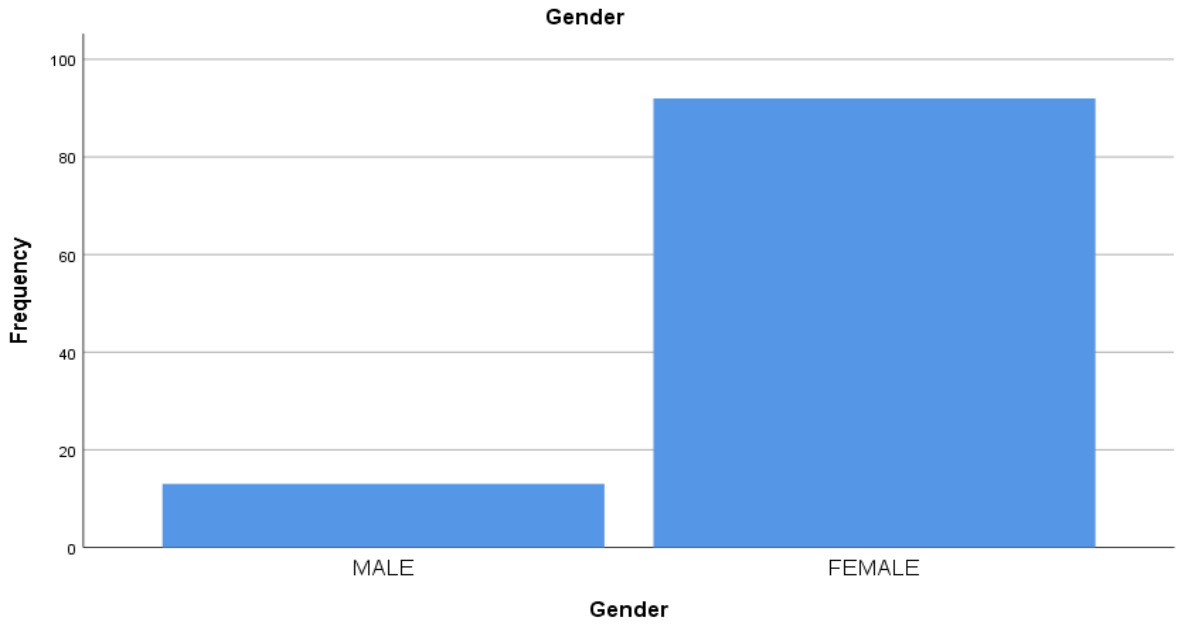


Figure 9: Gender of respondents

Figure 9 demonstrated that most of the respondents were females, comprising 87.6% (n=92) of the study according to translated statistics, while the male respondents were 12.4% (n=13) making a total of 105 participants.

		Valid	
		N	Percent
GENDER = MALE	HAIR TRANSPLANT	3	75.0%
	LIPOSUCTION ABDOMINAL	3	42.0%

	FACIAL REJUVENATION, FAT GRAFTING	1	100.0%
	THIGH LIPO	2	66.6%
	OTOPLASTY	2	100.0%
	PENILE ENLARGMENT	2	100.0%

Table 2: Cosmetic procedures in men

Table 2 provides an overview of the aesthetic procedures that were performed on male patients. It demonstrated that hair transplants and abdominal liposuction were the most prominent procedures done by men in Kenya, while facial rejuvenation and fat grafting were the least prominent.

4.3: Racial background, nationality, country of residence and geographical location

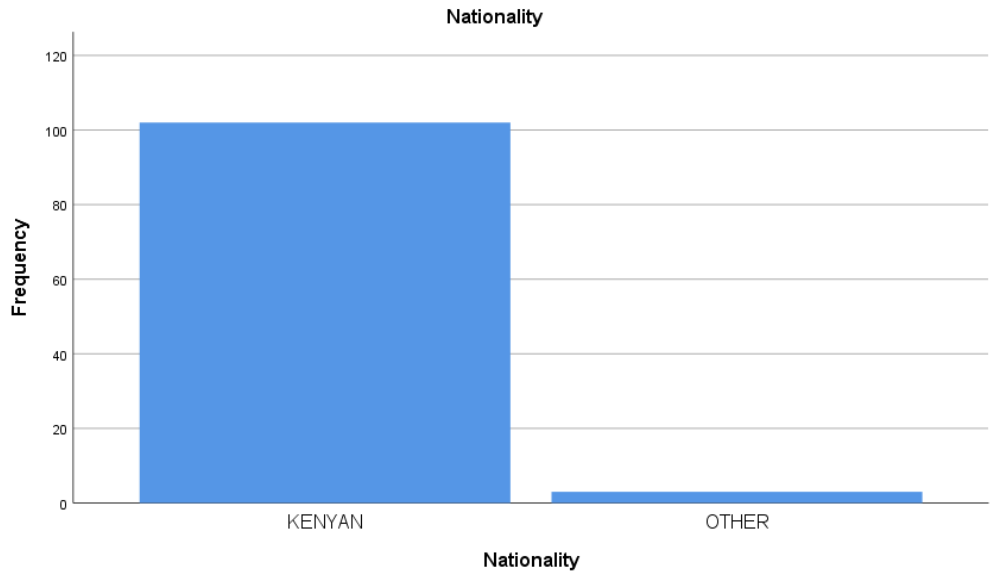


Figure 10: Nationality of respondents

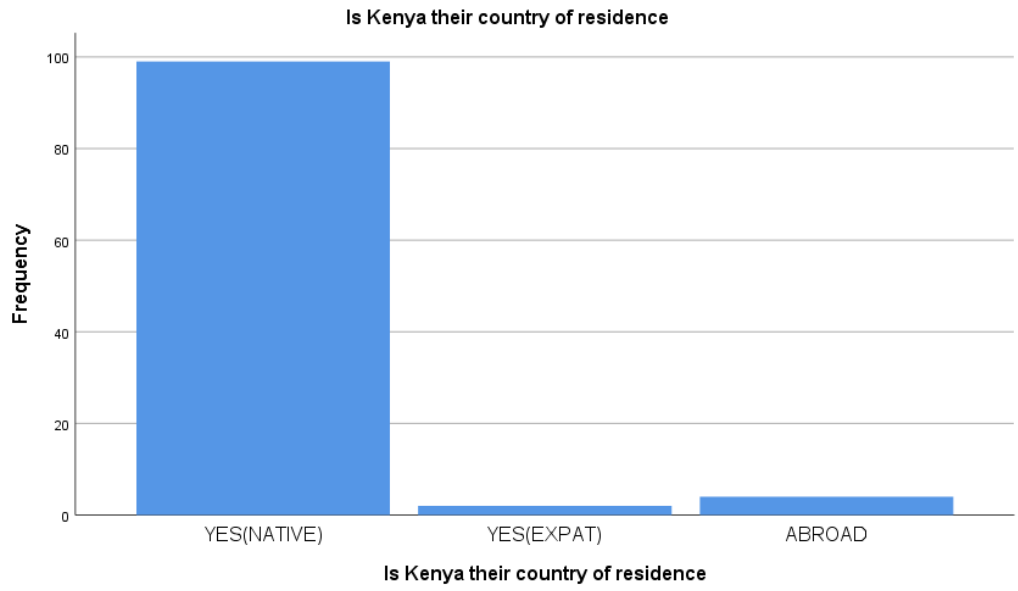


Figure 11: Country of residence of respondents

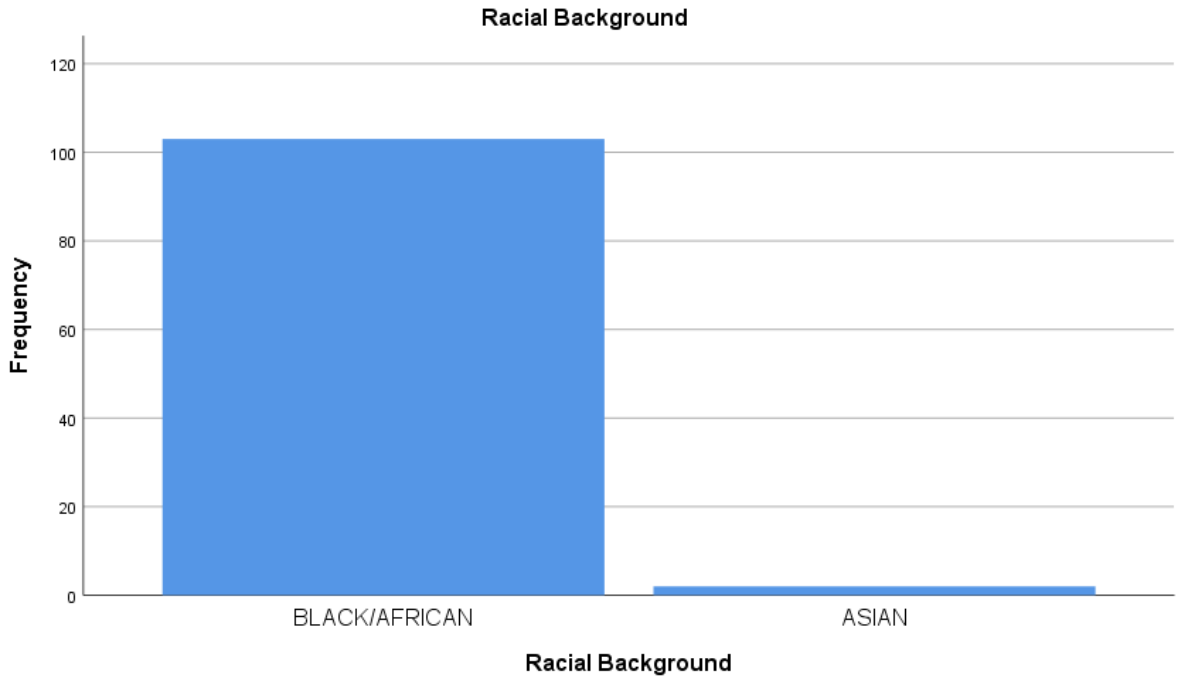


Figure 12: Racial Background of respondents

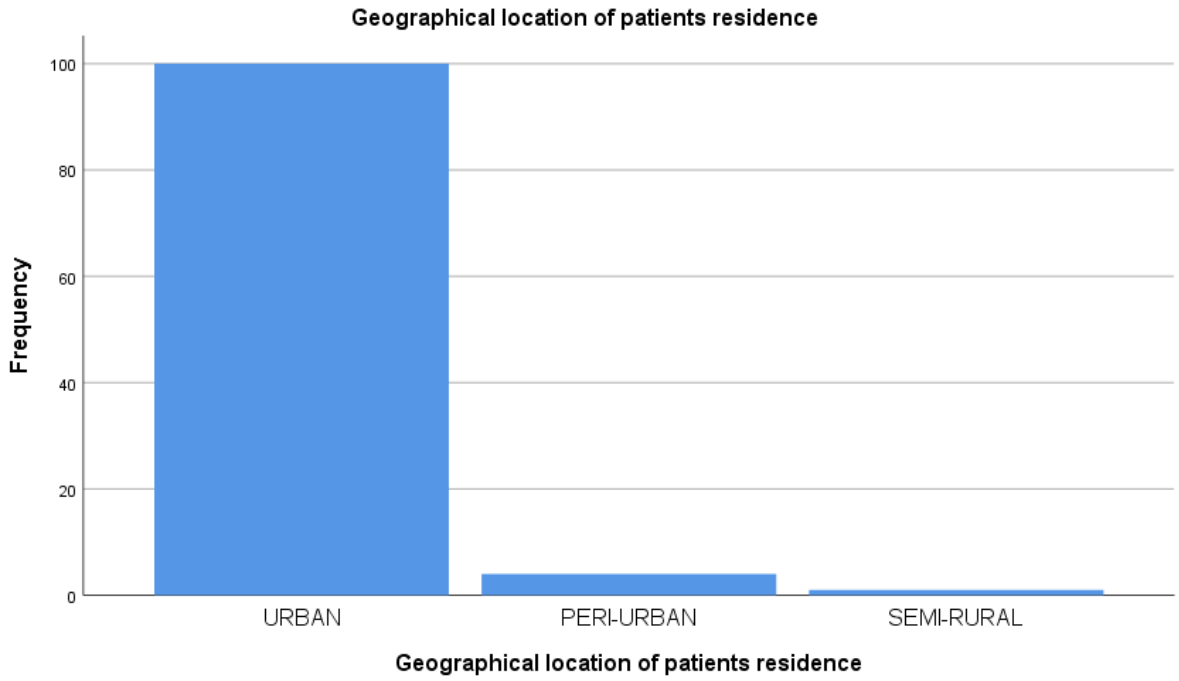


Figure 13: Geographical location of respondents' residence

Most of the respondents were Black/African residing and working in Kenya, comprising of 98.1% (n=103) with the least demographic being Asians living in Kenya at 1.9% (n=2). At least 97.1% of the study respondents were Kenyan nationals while 2.9% were other nationalities.

A larger number of respondents were found living in urban areas at 95.2% (n=100) and the least number of respondents living in semi-rural areas at 1% (n=1).

4.4: Age

The findings regarding age is particularly significant in this study. In assessing the cosmetic procedures done in Kenya, broader sociological questions were asked, factoring the demographics of the broader African continent and the global South.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-24	7	6.7	6.7	6.7
	25-34	28	26.7	26.7	33.3
	35-44	47	44.8	44.8	78.1
	45-54	19	18.1	18.1	96.2
	55-64	3	2.9	2.9	99.0
	65 and above	1	1.0	1.0	100.0
	Total	105	100.0	100.0	

Table 3: Range of ages

The age of the respondents was categorized into different subgroups. The highest number of respondents found in the age group of 35-44 at 44.8% (n=47) while the least percentage was found in the age group from ages 65 and above at 1.0% (n=1)

Summary of demographic characteristics

Variable		**Frequency**	**%**
Race	Black/African	103	98.1
	Asian	2	0.9
Nationality	Kenyan	102	97.0
	Other	3	3.0
Residence	Native	99	94.3

	Expatriate	4	3.8
	Abroad	2	1.9
Location	Urban	100	95.2
	Peri-urban	4	3.8
	Semi-rural	1	1.0

Table 4: Demographic Characteristics

4.7: Aesthetic procedures done

The cosmetic procedures that were performed provided important information about what procedures were prominent and therefore, whether Kenya may have a competitive edge in comparison to the world and the WHO Africa region specifically.

	Frequency	Valid Percent	Cumulative Percent
BREAST AUGMENTATION Silicone Implants (7) Fat grafting (3)	10	9.5	9.5
Brazilian Butt Lift	9	8.6	18.1
Leg Augmentation	2	1.9	20.0

LIPOSUCTION Abdominal (7) Leg Liposuction (2) Lipo 360 (11) Thigh lipo (3)	23	21.9	41.9
BRACHIOPLASTY	3	2.9	44.8
RHINOPLASTY	1	1.0	45.8
FACIAL REJUVINATION	1	1.0	46.8
FACE LIFT	1	1.0	47.8
ABDOMINOPLASTY	30	28.6	76.4
LIP AUGMENTATION	2	1.9	78.3
MASTOPEXY	11	10.5	88.8
BLEPHEROPLASTY	1	1.0	89.8
OTOPLASTY	2	1.9	91.7
VAGINOPLASTY	1	1.0	92.7
HAIR TRANSPLANTATION	4	3.8	96.5

PENILE ENLARGEMENT	2	1.9	98.4
BODY LIFT	1	1.0	99.4
VAGINOPLASTY	1	1.0	100
Total	105	100.0	100

Table 5: Cosmetic procedures done by respondents

Out of 105 procedures, the procedure undergone by most of the respondents was abdomino-plasty at 27.6% (n=30) .The procedures with the least respondents were vagino plasty, blepharo plasty and facial rejuvenation with fat grafting each at 1% (n=1). The second most procedure done was liposuction 21.9% (n=23) then mastopexy 10.5% (n=11), breast augmentation 9.5% (n=1) and Brazilian Butt Lift 8.6% (n=9)

4.8: Cost of procedure

The analysed data from the table below shows different prices of each procedure in the study, with the maximum amount being Ksh800,000 and the minimum being Ksh 30,000

Plastic surgery procedure	N	Range	Minimum	Maximum	Mean

BREAST Augmentation Fat Grafting	3	200000.00	250000.00	450000.00	350000.0ksh (3043Usd)
Breast Augmentation Silicon implants	7	400000	400000	800000	600000.Ksh (5217Usd)
BRAZILIAN BUTT LIFT	9	350000.00	450000.00	800000.00	650000.Ksh (5652Usd)
LEG AUGMENTATION	2	100000.00	150000.00	250000.00	200000.Ksh (1739Usd)
LIPOSUCTION Abdominal	7	150000.00	250000.00	400000.00	325000.Ksh (2862Usd)
Leg Lipo	2	40000.00	100000.00	140000.00	120000.Ksh (1043Usd)
Lipo 360	11	540000.00	260000.00	800000.00	516363Ksh (4490usd)
Thigh Lipo	3	.00	300000.00	300000.00	300000Ksh (2608usd)

BRACHIOPLASTY	3	680000.00	120000.00	800000.00	423333.Ksh (3681usd)
RHINOPLASTY	1	.00	250000.00	250000.00	250000.Ksh (2173Usd)
HAIR TRANSPLANT	4	30000.00	70000.00	100000.00	92500.Ksh (804Usd)
FACIAL REJUVINATION FAT GRAFT	1	.00	200000.00	200000.00	200000.Ksh (1739Usd)
FACE LIFT	1	.00	400000.00	400000.00	400000.Ksh (3478Usd)
ABDOMINOPLASTY	30	400000.00	350000.00	750000.00	662500.Ksh (5760Usd)
LIP AUGMENTATION	2	30000.00	120000.00	150000.00	135000.Ksh (1173Usd)
MASTOPEXY	11	300000.00	200000.00	500000.00	313793.Ksh (2728Usd)
BLEPHEROPLASTY	1	.00	700000.00	700000.00	700000.Ksh (6086Usd)

OTOPLASTY	2	150000.00	200000.00	350000.00	275000.Ksh (2391Usd)
VAGINOPLASTY	1	.00	650000.00	650000.00	650000.Ksh (5656Usd)
UPPER BODY LIFT	1	.00	550000.00	550000.00	550000.Ksh (4782Usd)
PENILE ENLARGMENT	2	180000.00	120000.00	300000.00	240000.Ksh (2086Usd)

Table 6: Total and mean cost of specific procedures (Exchange rate 1Usd;111Ksh)

CHAPTER FIVE: DISCUSSION

5.1: Introduction

This chapter provides an analysis of the findings obtained from primary and secondary data. In terms of secondary data, the section looked at the official and academic literature explored in this study. Primary data collected from the patient files will also be analysed in this section.

5.2: Discussion of Findings

5.2.1: Aesthetic surgical procedures provided in Kenya

The range of aesthetic surgical services provided in Kenya is diverse. According to the findings of this study, aesthetic services were offered to both male and female populations, with females being the predominant clients. The list of aesthetic procedures preferred by women in Kenya included: liposuction; breast augmentation; Brazilian butt lift; leg augmentation; brachioplasty; rhinoplasty; facial rejuvenation; abdominoplasty; lip augmentation; mastopexy; blepharoplasty; otoplasty; vaginoplasty and hair transplantation. The list of aesthetic procedures undergone by men in Kenya included: liposuction; facial rejuvenation; penile enlargement; otoplasty and hair transplantation.

The aesthetic procedures provided in Kenya were in alignment with those provided in both developing countries and the WHO Africa region. Furthermore, they illustrated the validity of arguments engaged with in the literature review, which contend that the nature of procedures provided was comparable to those in countries well-known for providing quality cosmetic procedures. The direct consequence of the provision of this diverse range of aesthetic surgical services was the growing rate of Kenyans who were utilising the country's facilities (40).

5.2.2: Prevalence of aesthetic surgery procedures performed in Kenya

The growing demand for aesthetic surgery procedures in Kenya is notable. Based on this, analysis was made on the prevalence of procedures on offer. This study has made a determination that the five most prevalent procedures, based on the number of clients who underwent these procedures during the study period were: abdominoplasty liposuction; mastopexy; breast augmentation and a Brazilian Butt Lift. A critical observation noted in the report by Odengo was that Kenyans want to enhance features that were deemed characteristic of "African beauty", which was characterised by voluptuousness. This was particularly true of Kenyan women who according to a report (41), were driving the cosmetic surgery industry in the country. The other procedures done in order of decreasing prevalence were: hair transplantation; penile enlargement; brachioplasty; leg augmentation; lip augmentation; vaginoplasty and rhinoplasty.

Rhinoplasty was not a common procedure among Kenyans and Africans broadly. Given that African noses tend to be much broader than Caucasian, Latino and Asian noses, and that some authors had argued that Africans do cosmetic surgery in the quest for a Caucasian aesthetic, it was notable that rhinoplasty was the least prevalent aesthetic procedure in Kenya. This was especially curious because in the developed world, particularly in the USA, the past few decades have seen a notable growth in the number of African-Americans undergoing rhinoplasty and those who continue to present to surgeons for rhinoplasty evaluations (42). That this was not occurring in Kenya may be the result of African women seeing cosmetic surgery as a way to enhance their natural features rather than to transform them into a more Caucasian aesthetic. This signals a contestation of the questionable idea that cosmetic surgery for Africans was merely about looking Caucasian. Furthermore, the growth of ethnic rhinoplasty indicates that while Black women may desire slight changes to the shapes of their noses, such change was not necessarily aimed at presenting the leaner and pointier Caucasian shaped nose. Ethnic rhinoplasty is defined as "the terminology given to patients who were not Caucasian who require special techniques such as African rhinoplasty or a Caribbean nose job to achieve a natural result" (43). The techniques required for ethnic nose surgeries differ from those that were employed for Caucasian nose surgeries and were made with the specific geo-historical context of the patient in mind.

Literature indicates that cosmetic procedures were greatly linked to cultural preferences that were informed by the prevailing cultural norms in a society. It is for this reason that the aesthetic procedures that are prevalent in one geographical area may differ radically to those in another – sometimes even as they may be within the same continent.

The summarised comparisons below provide a glimpse into this phenomenon.

Comparison with the USA

	USA	**KENYA**
1	Breast Augmentation	Abdominoplasty
2	Liposuction	Liposuction
3	Rhinoplasty	Mastopexy
4	Eyelid surgery	Breast Augmentation
5	Abdominoplasty	Brazilian Butt lift

Breast augmentation, liposuction and abdominoplasty were all common in both Kenya and the USA, while eyelid surgery and rhinoplasty were more prevalent in the USA than Kenya. Mastopexy and Brazilian Butt Lift were more prevalent in Kenya. The latter procedure in particular confirmed the argument that African women seek to enhance ethnic features through cosmetic surgery. In many ways, this reflects a cultural shift from an era where African features such as big buttocks were ridiculed. A report by Vaidyanathan (44) gives the example of Sarah Baartman, a young South African woman who was kidnapped and exhibited around Europe in colonial times because she had large buttocks and uses this to illustrate this historical shift from Africans being ridiculed for large buttocks and thus deeming them shameful, to a renaissance where they are embraced and celebrated as a uniquely African feature of beauty and sensuality.

Comparison with India and Brazil

	KENYA	**INDIA**	**BRAZIL**
1	Abdominoplasty	Liposuction	Breast Augmentation
2	Liposuction	Rhinoplasty	Liposuction
3	Mastopexy	Hair transplantation	Eyelid surgery
4	Breast Augmentation	Breast augmentation	Abdominoplasty
5	Brazillian Butt lift	Abdominoplasty	Breast Lift

Liposuction, breast augmentation and abdominoplasty were all prevalent in Kenya, India and Brazil. A significant difference in the prevalence of aesthetic surgical procedures between these three countries was that rhinoplasty was prevalent in India and eyelid surgery in Brazil – but none of the two found prominence in Kenya. This is largely due to the beauty ideals that were culturally informed in each country. In India, owing to a history of a caste system that was rooted in colourism, Caucasian features were valued more. This was confirmed in a study by Mishra on the nuances of colourism in India (45). For this reason, rhinoplasty was prevalent as Indian men and women sought to acquire a more Caucasian aesthetic.

Comparison with South Africa and Egypt

	KENYA	**SOUTH AFRICA**	**EGYPT**
1	Abdominoplasty	Breast Augmentation	Liposuction
2	Liposuction	Eyelid surgery	Breast augmentation
3	Mastopexy	Liposuction	Abdominoplasty
4	Breast Augmentation	Breast reduction	Facial Rejuvination (Fat grafting)
5	Brazilian Butt lift	Abdominoplasty	Rhinoplasty

.

Abdominoplasty, Liposuction, and breast augmentation were prevalent in Kenya, South Africa and Egypt. Breast reduction and eyelid surgery, however, were prevalent in South Africa but not in the other two countries, while fat grafting and rhinoplasty were prevalent in Egypt and not the other two countries. This too was a function of geographic and culturally specific beauty standards. South Africa is one of the most racially diverse countries in Africa, with a huge Caucasian population that comprises almost 10 percent of the entire population of 57 million people. This Caucasian population in particular drives the demand for eyelid surgery. A study by Dr Hugh S. Taylor at the Yale University School of Medicine in New Haven, Connecticut, quoted by Norton (46) argues that Caucasian women in particular show wrinkles sooner because their skin is susceptible to damage from long periods of sun exposure and faster declining elasticity. This may provide an explanation as to why eyelid surgery, (47) is prevalent in a country with a higher percentage of Caucasians in Africa.

5.2.3: Average cost of aesthetic surgical procedures in Kenya contrasted with other WHO Regions

One of the findings of this study was that aesthetic services in Kenya are relatively cheaper in comparison to developed countries such as the USA. It is within the same ranges when compared to semi-industrialising countries such as Brazil and India and to countries within the WHO Africa region such as South Africa and Egypt.

5.3: Conclusion

The results of this study showed that the practice of aesthetic surgery performed in Kenya with reference to surgical procedures was more or less similar to the practice in the developed world and in the WHO African region. The cost of services is competitive and relatively cheaper when compared to the developed countries in the global North. The cost was comparable with semi-industrialised countries in the global South as well as to other African countries.

5.4: Recommendations

With the results of this study being limited to a short period of time which was done retrospectively, the recommendation is that studies are done in the future to assess the trends of aesthetic surgical procedures. This will give a more accurate analysis that factors in the large and rapidly increasing population of Kenyans seeking aesthetic surgery procedures, and what could be the factors influencing the types of procedures that are growing in prevalence.

5.5: Study Limitations

A preliminary review of literature indicates that there is scant academic research on aesthetic surgery in the developing world, specifically Kenya. This creates multiple significant gaps in literature, which could create deficiencies in the substance of the qualitative analysis. A two-year retrospective analysis was undertaken. This necessitated correct and up-to-date information in the archives of various private and public medical institutions. Their data storage, if it was any way impacted, had adverse implications for the validity of the data that the researcher collected for analysis.

The study was done in centres which were in the capital city, Nairobi, which might not give a true picture of Kenya as a whole. Some centres were not comfortable sharing their data

especially on pricing so they declined to participate, limiting the researcher's ability to utilise more data sets.

5.6: Study Delimitations

The centres that data were collected were willing to participate and gave their full support as well as revealing data that would otherwise be impossible to get.

5.7: Study Strengths

This study provides a comprehensive outline of what aesthetic services were available in the country, which could be utilised in applied studies on how to further develop Kenya's cosmetic industry not only for locals but for possibilities of providing medical tourism within the African region and the rest of the world

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ANNEXURE A

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PARTICIPANT INFORMATION AND CONSENT FORM

ADULT CONSENT

FOR ENROLLMENT IN THE STUDY

(To be administered in English)

Title of Study:

Assessing the practice of aesthetic surgery in Kenya

Principal investigator\and institutional affiliation: Dr Evans Spanton Masitara/Department of Surgery, University of Nairobi

Co-investigators and institutional affiliation: Professor Stanley Khainga and Dr Abdullahi Adan/ University of Nairobi.

Introduction:

I would like to tell you about a study being conducted by the above listed researchers. The purpose of this consent form is to give you the information you will need to help you decide whether or not to be a participant in the study. Feel free to ask any questions about the purpose of the research, what happens if you participate in the study, the possible risks and benefits, your rights as a volunteer, and anything else about the research or this form that is not clear. When we have answered all your questions to your satisfaction, you may decide to be in the study or not. This process is called 'informed consent'. Once you understand and agree to be in the study, I will request you to sign your name on this form. You should understand the general principles which apply to all participants in a medical research: i) Your decision to participate is entirely voluntary ii) You may withdraw from the study at any time without necessarily giving a reason for your withdrawal iii) Refusal to participate in the research will not affect the services you are entitled to in this health facility or other facilities. We will give you a copy of this form for your records.

May I continue? YES / NO

This study has approval by the Kenyatta National Hospital-University of Nairobi Ethics and Research Committee.

Protocol no. P672/08/2021_____

WHAT IS THIS STUDY ABOUT?

The researchers listed above are taking data from institutions who provide aesthetic surgery services. The purpose of the interview is to assess the practice of aesthetic surgery in Kenya. Data in this research study will be collected from patient files and capture demographics as

relates to their age, sex and citizenship/residency. Additionally, the nature and cost of the procedures underwent.

There will be 105 participants in this study, chosen through a non-probability purposive sampling technique. We are asking for your consent to consider participating in this study.

WHAT WILL HAPPEN IF YOU DECIDE TO BE IN THIS RESEARCH STUDY?

If you agree to participate in this study, the following will happen:

You would give us access to your records of procedures over the past 2 years as well as the next 2 months.

The researcher will take the demographic data as defined, as well as data on the nature and cost of the aesthetic procedure.

A trained research assistant will be granted access to your surgical records and collect data from patient files, using a data collection tool and seek clarification as and when the need arises.

After the process has concluded, the collected data related will be shared with you and compiled to feed into our study.

We will ask for a telephone number where we can contact you if necessary. If you agree to provide your contact information, it will be used only by people working for this study and will never be shared with others. The reasons why we may need to contact you include clarification on some of the data collected.

ARE THERE ANY RISKS, HARMS DISCOMFORTS ASSOCIATED WITH THIS STUDY?

Medical research has the potential to introduce psychological, social, emotional and physical risks. Effort should always be put in place to minimize the risks. One potential risk of being in the study is loss of privacy. We will keep everything you tell us as confidential as possible. We will use a code number to identify patients in a password-protected computer database and will keep all of our paper records in a locked file cabinet. However, no system of protecting

your confidentiality can be absolutely secure, so it is still possible that someone could find out you were in this study and could find out information about patients.

ARE THERE ANY BENEFITS BEING IN THIS STUDY?

The study aims to inform practitioners and society at large about the aesthetic work which is currently being done in Kenya. The potential benefits from the study would be increased numbers of people seeking aesthetic services locally as opposed to going abroad. Additionally, the information you provide will help us better understand the practice of aesthetic surgery locally. This information is a contribution to science and learning as it will influence the training of local surgeons to meet demand for certain services.

WILL BEING IN THIS STUDY COST YOU ANYTHING?

No

WILL YOU GET REFUND FOR ANY MONEY SPENT AS PART OF THIS STUDY?

Not Applicable

WHAT IF YOU HAVE QUESTIONS IN FUTURE?

If you have further questions or concerns about participating in this study, please call or send a text message to the study staff at the number provided at the bottom of this page.

For more information about your rights as a research participant you may contact the Secretary/Chairperson, Kenyatta National Hospital-University of Nairobi Ethics and Research Committee on:

Telephone no. 2726300 Ext. 44102

Email: uonknh_erc@uonbi.ac.ke.

The study staff will pay you back for your charges to these numbers if the call is for study-related communication.

WHAT ARE YOUR OTHER CHOICES?

Your decision to participate in research is voluntary. You are free to decline participation in the study and you can withdraw from the study at any time without injustice or loss of any benefits.

CONSENT FORM (STATEMENT OF CONSENT)

Participant's statement

I have read this consent form or had the information read to me. I have had the chance to discuss this research study with a study counselor. I have had my questions answered in a language that I understand. The risks and benefits have been explained to me. I understand that my participation in this study is voluntary and that I may choose to withdraw any time. I freely agree to participate in this research study.

I understand that all efforts will be made to keep information regarding my personal identity confidential.

By signing this consent form, I have not given up any of the legal rights that I have as a participant in a research study.

I agree to participate in this research study: Yes No

I agree to have (define specimen) preserved for later study: Yes No

I agree to provide contact information for follow-up: Yes No

Participant printed name:

_____

Participant signature / Thumb stamp _____ Date

_____

Researcher's statement

I, the undersigned, have fully explained the relevant details of this research study to the participant named above and believe that the participant has understood and has willingly and freely given his/her consent.

Researcher's name: _____ **Date**: _____

Signature

_____

Role in the study: _____

Witness Printed Name (If witness is necessary, A witness is a person mutually acceptable to both the researcher and participant)

Name _____ Contact information _____

Signature /Thumb stamp: _____ Date;

Contact of Researchers

KNH/UON-ERC

This study has been reviewed and approved by the KNH/UON-ERC which is a committee whose work is to make sure research participants are protected from harm. The contact information is given below if you wish to contact them for whatever reason:

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ANNEXURE B

Patient Demographic Survey by Researcher

Please complete the following questionnaire with specific regard to the above enquiry, by placing a cross in the appropriate box.

Gender

- Male
- Female
- Non-binary/gender non-conforming

Racial background

- Black/African
- White
- Asian
- Other (please specify)

Age category

- Under 18
- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65 and above

Nationality

- Kenyan
- Other (please specify)

Is Kenya the country of residence?

- Yes (native)
- Yes (expat)
- No (please specify)

Geographical location of patients' residence

- Urban
- Peri-urban
- Semi-rural
- Rural

What was the total cost of the procedure?